

CLAIMS

What is claimed is:

1. An isolated nucleic acid molecule encoding a plant disease resistance polypeptide selected from the group consisting of:

(a) a nucleic acid molecule with polypeptide coding sequence having greater than 93% nucleotide sequence identity with SEQ ID NO:1 from nucleotide 52 to nucleotide 3018;

(b) a nucleic acid sequence which encodes a polypeptide having greater than 90% identity with SEQ ID NO:2, 4 or 10;

(c) a nucleic acid sequence which hybridizes under high stringency conditions with SEQ ID NO:1 from nucleotide 52 to nucleotide 3018;

(d) a nucleic acid molecule as shown in SEQ ID NO:1, 3 or 9.

2. The nucleic acid molecule of claim 1 which is contained in plasmid pBT1596 or plasmid pBT1593.

3. A nucleic acid construct comprising a nucleic acid molecule of claim 1 operably linked to one or more control sequences which direct the production of a plant disease resistance polypeptide in an expression host.

4. A cell transformed with the isolated nucleic acid molecule of claim 1.

5. A plant transformed with the isolated nucleic acid molecule of claim 1.

6. A seed of the plant according to claim 5.

7. The plant of claim 5 wherein the plant is a solanaceous plant.

8. The plant of claim 7 wherein the solanaceous plant is potato.

9. Sexually or asexually derived progeny of the plant of claim 5.

10. An isolated plant disease resistance polypeptide selected from the group consisting of:

(a) a polypeptide having greater than 90% identity with SEQ ID NO:2, 4 or 10;

(b) a polypeptide encoded by a nucleic acid molecule with polypeptide coding sequence having greater than 93% nucleotide sequence identity with SEQ ID NO:1 from nucleotide 52 to nucleotide 3018;

(c) a polypeptide encoded by a nucleic acid sequence which hybridizes under high stringency conditions with SEQ ID NO:1 from nucleotide 52 to nucleotide 3018;

(d) a polypeptide having the amino acid sequence of SEQ ID NO:2, 4 or 10.

11. A method of conferring or enhancing a plant's resistance to a fungal pathogen, which comprises transforming a plant, plant part, or plant cell with one or more isolated nucleic acid molecules of claim 1.

12. The method of claim 11 wherein the plant is a solanaceous plant.

13. The method of claim 12 wherein the solanaceous plant is potato.

14. The method of claim 11 wherein said resistance is to late blight disease, caused by the fungus *Phytophthora infestans*.

15. A method for producing a plant disease resistance polypeptide, which comprises cultivating a recombinant host cell comprising a transformed cell having a nucleic acid molecule of claim 1 which encodes a plant disease resistance polypeptide, under conditions suitable for production of the polypeptide; and recovering the polypeptide.